REMARKS

Reconsideration of the rejections set forth in the Office action mailed July 15, 2005 is respectfully requested, for the reasons discussed below. Claims 1-3, 5-11, 15-17 and 19-27 are currently pending. Dependent claim 4 is cancelled with this amendment.

I. Amendments

Claim 1 is amended to incorporate the subject matter of dependent claim 4, which is cancelled.

For clarity, in view of the reference to "an unhybridized portion of the probe molecule" in part (a) of the claim, the phrase "duplexes, each comprising one of a population of...analyte molecules hybridized with a specific probe molecule" has been amended to "duplexes, each comprising one of a population of...analyte molecules and a specific probe molecule". The phrase "single stranded species" in the last clause of the claim has been amended to "single stranded analyte or probe molecules".

Claim 1 has been amended to recite that the analyte molecules are oligonucleotide analogs, as stated, for example, at page 1, line 8 of the specification, and to emphasize that they are "substantially uncharged". Support is found in the previous version of the claim ("said analyte molecules are composed of linked subunits of which at least 90% are uncharged") and at, for example, page 8, line 11 of the specification.

Claim 1 is further amended to emphasize that different probe-analyte duplexes are formed, via hybridization of the specific probe molecule with a plurality of, or all of, the different analyte molecules. Support is found, for example, at page 13, lines 1-4 of the specification, as well as the discussion at page 9, line 6 to page 10, line 1.

Claim 7 has been amended to recite that "N" is the length in nucleotides of the "selected sequence" recited in parent claim 2. Support is found, for example, at page 8, lines 22-23, which states that the "analyte molecules may be of different lengths, such as in a mixture of different-length fragments of the same 'parent' sequence (N-mer)".

Claim 20 is amended, for clarity, to recite "another member of this group".

No new matter is added by the amendments.

II. Rejections under 35 U.S.C. §112, Second Paragraph

Claims 2, 4, 7-9 and 20-22 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 2 has been amended to revise the phrase "wherein the nucleotide sequence of each analyte molecule is selected from..." to "wherein each analyte molecule has a nucleotide sequence selected from...". This amendment, and the amendment to claim 1 to recite that the analytes are "oligonucleotide analogs", addresses the need for antecedent basis for the phrase "nucleotide sequence" in claim 2.

Claim 4 has been cancelled, rendering the objection to this claim moot.

Claim 7 is amended to provide a definition for "N" and thereby for "N-1".

Claim 20 is amended, for clarity, to recite "another member of this group", in reference to the Markush group recited in the claim.

In view of the foregoing, the applicants submit that the pending claims comply with the requirements of 35 U.S.C. §112, second paragraph.

III. Rejections under 35 U.S.C. §102(b)

Claims 1-11, 16-17, 19-20, and 23-27 were rejected under 35 U.S.C. §102(b) as being anticipated by Celebuski *et al.*, U.S. Patent No. 5,932,413. This rejection is respectfully traversed for the following reasons.

A. The Claims

Independent claim 1 is directed to a method of separating a population of duplexes, each comprising one of a population of different, substantially uncharged oligomeric analyte molecules and a specific probe molecule,

wherein the substantially uncharged analyte molecules are oligonucleotide analogs composed of linked subunits of which at least 90% are uncharged, and the specific probe molecule is a fully charged nucleic acid or fully charged nucleic acid analog,

the method comprising:

(a) applying to a charge-bearing separation medium a mixture of (i) the different substantially uncharged analyte molecules and (ii) the specific probe molecule, under conditions such that the probe molecule forms stable duplexes with a plurality of or all of the different analyte molecules,

thereby forming a plurality of different probe-analyte duplexes, which differ from each other with respect to the presence, length or position of an unhybridized portion of the probe molecule, and

(b) *separating the different probe-analyte duplexes from each other* and from single stranded analyte or probe molecules within the medium.

B. The Cited Art

Celebuski describes "assays using labeled probe strands with DNA complementary to strands of DNA in a sample to detect the presence of the DNA in the sample by analyzing for the labeled probe strands" (column 1, lines 8-11). The assay employs a labeled probe molecule, complementary to the target DNA in a sample, which is "neutrally charged" (column 1, lines 50-55).

As described at column 1, line 56 to column 2, line 3 of the patent, the negatively charged DNA, and the probe strand which is hybridized to the negatively charged DNA, are retained on a positively charged solid phase, and any unhybridized probe strands (which are neutrally charged) are washed away. By examination of the solid phase and/or the wash for a label on the probe strand, one can determine the amount or presence of the target DNA in the sample.

The "positively charged solid phase" is exemplified as filter paper discs or microparticles coated with a cationic material such as a quaternary ammonium salt (e.g. column 3, line 58 to column 4, line 13; working example 3).

C. Differences from the Claims

The assay method described by Celebuski employs a single "neutrally charged" probe molecule, which is complementary to the target DNA (see e.g. column 1, lines 51-52: "...introducing into the sample a second probe oligonucleotide sequence complementary to the first oligonucleotide sequence"; emphasis added). There is no indication that the method

employs a "population of different" oligomeric molecules which are "substantially uncharged"; both of these features are attributed to the "analyte" molecules of the present claims.

Moreover, there is no indication anywhere in the Celebuski patent that the "positively charged solid phase" separates, or would be able to separate, different duplexes from each other, as presently claimed. The patent states merely that "unhybridized probe strands can be separated from the hybridized probe strands simply by contacting the sample with a positively charged solid phase" (column 1, lines 56-57).

Since the reference does not disclose all of the elements set out above in claim 1 and its dependent claims, the claims cannot be anticipated by this reference under 35 U.S.C. §102(b). In view of this, the applicant respectfully requests the Examiner to withdraw the rejection under 35 U.S.C. §102(b).

IV. Conclusion

In view of the foregoing, the applicant submits that the claims now pending are now in condition for allowance. A Notice of Allowance is, therefore, respectfully requested.

If in the opinion of the Examiner a telephone conference would expedite the prosecution of the subject application, the Examiner is encouraged to call the undersigned at (650) 838-4403.

Respectfully submitted,

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